

REMARKS/ARGUMENTS

Applicant thanks Examiner for the detailed Office Action dated March 22, 2007. In response to the issues raised, the Applicant offers the following submissions and amendments.

Amendments

The specification has been amended at page 1 to include the 'CROSS REFERENCE TO RELATED APPLICATIONS' section.

Accordingly, the amendments do not add any new matter.

35 U.S.C. §103

Claims 1 to 5, 7, 8, 11, 12, 16 to 20, 22, 23, 26, 27, 31 to 34, 36, 37, 40, 41 and 45 to 47 stand rejected as obvious in light of US 6,019,457 to Silverbrook in view of The Fabrication and Reliability Testing of Ti/TiN Heaters by DeMoor et al.

Independent claims 1, 16 and 31 are restricted to nozzle arrangements that configure the heater such that it is spaced from the collapse point of the bubble that it generates. This avoids the corrosive effects of cavitation which in turn, allows the heater to have a thinner, or non-existent, protective coating. The coating material, typically tantalum pentoxide, has a high atomic mass and therefore presents a large thermal mass that the heater must heat before it can nucleate a bubble in the ink.

In '457 to Silverbrook, the bubble 198 is annular but collapses to the heater element 120. Figures 12 and 17 of '457 do not show a bubble collapse point spaced from the heater. Furthermore, Figures 28 to 31 show the operation of the '457 printhead. Clearly the bubble 116 collapses onto the heater.

Likewise, DeMoor does not teach a inkjet printhead much less a bubble collapse point spaced from the heater element.

It is well established that a §103 rejection requires that the cited references teach all the elements of the claims. As the citations do not teach all the elements of independent claims 1, 16 and 31, they fail to render the invention obvious.

Claims 6, 10, 15, 21, 25, 30, 35, 39 and 44 stand rejected as obvious in light of US 6,019,457 to Silverbrook in view of The Fabrication and Reliability Testing of Ti/TiN Heaters by DeMoor et al in further view of US 5,706,041 to Kubby. Kubby also fails to disclose a bubble collapse point spaced from the heater.

Claims 9, 24 and 38 stand rejected as obvious in light of US 6,019,457 to Silverbrook in view of The Fabrication and Reliability Testing of Ti/TiN Heaters by DeMoor et al in further view of US 6,543,879 to Feinn et al. Feinn also fails to disclose a bubble collapse point spaced from the heater.

Claims 13, 28 and 42 stand rejected as obvious in light of US 6,019,457 to Silverbrook in view of The Fabrication and Reliability Testing of Ti/TiN Heaters by DeMoor et al in further view of US 4,965,594 to Komuro. Komuro also fails to disclose a bubble collapse point spaced from the heater.

Claims 14, 29 and 43 stand rejected as obvious in light of US 6,019,457 to Silverbrook in view of The Fabrication and Reliability Testing of Ti/TiN Heaters by DeMoor et al in further view of US 5,969,005 to Yamashita et al. Yamashita also fails to disclose a bubble collapse point spaced from the heater.

Pursuant to the above, the cited references do not support a §103 rejection of any of the dependent claims.

It is respectfully submitted that the Examiner's objections and rejections have been successfully traversed and the application is now in condition for allowance. Accordingly, favorable reconsideration is courteously solicited.

Very respectfully

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